

SECTION 08 63 00

METAL-FRAMED SKYLIGHTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Metal framed roof skylight.
- B. Baked enamel finish.
- C. Glass.
- D. Glazing gaskets.
- E. Fasteners and accessories.
- F. Isolation coating.
- G. Sealant.

1.02 MEASUREMENT AND PAYMENT

- A. General: Metal-framed skylights will not be measured separately for payment but will be paid for as part of the Contract lump sum price for Architectural Work.

1.03 REFERENCES

- A. American Architectural Manufacturers Association (AAMA):
 - 1. AAMA 605.2 Voluntary Specification for High Performance Organic Coatings on Architectural Extrusions and Panels
 - 2. AAMA 1600 Voluntary Specifications for Skylights
 - 3. AAMA SDGS-1 Structural Design Guidelines for Aluminum Framed Skylights
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM E283 Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
- C. Federal Specifications (FS):
 - 1. TT-S-230 Sealing Compound: Elastomeric Type, Single Component, Chemically Curing (for Calking, Sealing, and Glazing in Buildings and Other Structures)
 - 2. TT-S-1543 Sealing Compound: Silicone Rubber Base (for Calking, Sealing, and Glazing in Buildings and Other Structures)

1.04 REGULATORY REQUIREMENTS

- A. In addition to the foregoing referenced standards, the regulatory requirements that govern the work of this Section include the following governing code:

California Code of Regulations (CCR), Title 24, Part 2, California Building Code, Chapter 15, "Roofing and Roof Structures," and Chapter 24, Section 2409, "Sloped Glazing and Skylights."

1.05 SUBMITTALS

- A. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Shop Drawings and Product Data: Submit detailed Shop Drawings and manufacturer's product data of the roof skylight, giving sizes, details of fabrication and construction, glass data, coatings data, color chart, method of assembly, locations and types of anchors, and related work.
- C. Samples: Submit samples of lengths of coated metal framing, in color as selected. Color-coated metal surfaces require approval of the Engineer.

1.06 DESIGN AND QUALITY ASSURANCE

- A. Conform with requirements of the California Building Code, Chapters 15 and 24, AAMA 1600, and AAMA SDGS-1, as applicable.
- B. Design and Responsibility: Roof skylight shall be designed, fabricated, and installed by a skilled and experienced supplier/installer specializing in the design, manufacture, and installation of custom skylights.
- C. Design Criteria: Comply with the hereinbefore specified Reference Standards and the following:
1. Structural Design Requirements: California Building Code, Chapters 15 and 24; maximum deflection: 1/240.
 2. Live Load: 40 pounds per square foot.
 3. Wind Loads: 30 pounds per square foot, (positive and negative).
 4. Seismic Design: Calculations of seismic loading and design for seismic conditions shall be in accordance with the California Building Code, Chapter 16 and Chapter 16A, Division IV – Earthquake Design.
 5. Thermal Movement: Provide for noiseless expansion and contraction that may be caused by a temperature range of 100 degrees F.
 6. Weathertight Integrity:
 - a. Water Penetration: None.

- b. Air Infiltration: Maximum of 0.06 cubic foot per minute when tested in accordance with ASTM E283.

7. Glass Safety Factor: 2.5.

1.07 GUARANTY

- A. In addition to the guaranty requirements specified in the General Conditions, Article GC4.9, roof skylight and related flashings shall be guaranteed against leakage, defective materials, and poor work quality of the completed work. Any such defects or leakage occurring during the period of the guaranty shall be promptly and completely corrected, including all affected work, at no additional cost to the District.
- B. Said guaranty shall be in effect for a period of five years from the date of Certificate of Substantial Completion issued by the District. The guaranty shall be signed by the skylight installer and countersigned by the Contractor, and shall be submitted to the Engineer prior to acceptance of the skylight work.
- C. In addition, submit coating system manufacturer's standard 20 year warranty for the fluoropolymer baked-enamel finish as herein specified.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Skylight Type: Skylight shall be custom-designed and -fabricated, metal-framed roof skylight, conforming with the details and dimensions indicated.
- B. Baked-Enamel Finish:
 - 1. Coating System: Exposed metal framing shall be coated and finished with a baked fluoropolymer enamel coating system. Color shall be a standard color as selected and approved by the Engineer from manufacturer's standards.
 - a. Heads of exposed fasteners shall be coated to match color of adjacent baked enamel finish.
 - 2. Coating Performance: Final coating shall conform with the ASTM performance and test requirements specified in AAMA 605.2.
- C. Glass: Comply with requirements indicated and the California Building Code, Chapter 24, Glass and Glazing.
- D. Glazing Gaskets: Extruded synthetic rubber, continuous glazing gaskets, tape, or strip, as recommended by the skylight manufacturer.
- E. Fasteners and Accessories: Furnish anchors and fasteners, washers, straps, and accessories required for a complete and finished installation. Fasteners connecting framing members and fasteners exposed to weather shall be Type 304 or Type 316 stainless steel. Interior fasteners

shall be stainless steel with heads coated to match baked-enamel finish. Fasteners shall have rubber gaskets or washers under heads, nuts, and metal washers.

- F. Isolation Coating: Framing members to be in contact with concrete, wood, plaster, or dissimilar metals shall be painted with a heavy coat of alkali-resistant bituminous paint.
- G. Sealant: Silicone synthetic rubber elastomeric sealant that cures at normal temperature to a flexible firm rubber, tack free, and designed for adhesion to the surfaces to which it will be applied. Sealant shall meet or exceed the minimum requirements of Fed. Spec. TT-S-230 or Fed. Spec. TT-S-1543, as applicable.

2.02 FABRICATION

- A. Roof skylight shall be custom designed and fabricated to suit building conditions and roof opening, of sizes and configurations indicated.
- B. Sizes and design characteristics of the framing members shall be as required by opening spans to carry a minimum live load of 40 pounds per square foot with a maximum fiber stress of 13,000 pounds per square inch and maximum deflection of 1/240 at center of span and as specified in Article 1.05.C.
- C. Metal framing shall be prefabricated and preassembled in the factory or shop as far as practicable. Welding shall be performed in the shop by qualified welders as specified in Section 05 05 22 - Metal Welding. Welds exposed to view shall be ground and dressed smooth.
- D. Provide for expansion and contraction in the fabrication and assembly of metal framing.
- E. Provide for drainage of condensation to the exterior. Curbs shall be provided with condensation weep holes.
- F. Glass shall be continuously supported on glazing gaskets or tape at all bearing surfaces, top and bottom. Gaskets or tape shall be compressed a minimum of 15 percent all around to form a tight seal. There shall be no glass surfaces bearing on metal. Gaskets and sealing tape shall be continuous and shall seal glass and metal watertight. Provide for 5/8-inch minimum grip of glass and for expansion and contraction of glass.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Skylight shall be installed and glazed by the manufacturer or its authorized representative as indicated and in accordance with the approved Shop Drawings and the manufacturer's installation instructions and recommendations, using only workers skilled and experienced in this type of work.
- B. Ample provisions shall be made in flashings and assemblies for expansion and contraction. Skylight shall be watertight after installation and completion of the work.
- C. Skylight assembly shall be set on curb in continuous bead of sealant. Skylight assembly and flashings shall be calked and sealed with sealant as required for a watertight installation.

Calking and sealing work shall conform with applicable requirements of Section 07 90 00 - Joint Protection.

3.02 TESTS

- A. Skylight installation shall be watertight, and water tests to prove this shall be conducted by the Contractor, under the observation of the Engineer. Water tests shall be performed in conjunction with roofing water tests. Tests shall be performed before work is started on interior finishes.

END OF SECTION 08 63 00